

**Course Title: Measurement and Evaluation in Education**

Course No.: Ed. 531

Level: M. Ed.

Semester: Third

Nature of course: Theoretical

Credit Hours: 3 cr. hrs.

Teaching Hours: 48 hours

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**1. Course Description**

This is a professional core course designed for the master's degree students. This course deals with the nature of educational measurement and evaluation along with reliability and validity of a test, standardization of a test, measuring complex achievement, and intelligence and standardized achievement tests. The students are also required to perform the activities mentioned in the course. The course aims to enable the students in designing standardized tests.

**2. General Objectives of the course**

The general objectives of this course are as follows:

- to introduce the general problems and current trends in educational measurement.
- to acquaint with major considerations in validation
- to develop skills in estimating reliability.
- to equip with skills in measuring complex achievement in education
- to equip with skills in constructing standardized test.
- to acquaint with selected intelligence tests and standardized achievement test.

**3. Course Outlines**

<b>Specific Objectives</b>	<b>Contents</b>
<ul style="list-style-type: none"><li>• show relationship among test, measurement and evaluation.</li><li>• differentiate between psychological and physical measurement.</li><li>• explain the various scales of measurement.</li><li>• explain the problems of measurement.</li><li>• explain the current trends in educational measurement.</li><li>• Differentiate between norm reference test and criterion reference test.</li><li>• explain the relationship between evaluation and the instructional process.</li></ul>	<p><b>Unit I : Educational Measurement and Evaluation (8)</b></p> <ul style="list-style-type: none"><li>1.1 Overview of test, measurement and evaluation</li><li>1.2 Types of measurement<ul style="list-style-type: none"><li>1.2.1 Psychological measurement</li><li>1.2.2 Physical measurement</li></ul></li><li>1.3 Scales of measurement – nominal scale, ordinal scales, equal interval scale and ratio scales</li><li>1.4 General problems of measurement</li><li>1.5 Current trends in educational measurement<ul style="list-style-type: none"><li>1.5.1 'High stakes' testing</li><li>1.5.2 Performance and portfolio assessment</li><li>1.5.3 Technological advances in testing</li><li>1.5.4 National assessment of students' achievement</li></ul></li><li>1.6 Norm reference test vs. criterion reference test</li><li>1.7 Relationship between evaluation and instruction.</li></ul>

<ul style="list-style-type: none"> <li>• explain the major considerations in validation.</li> <li>• interpret validity coefficients.</li> <li>• explain the factors influencing validity.</li> <li>• compute reliability from various methods.</li> <li>• explain the factors influencing reliability.</li> <li>• show relationship between reliability and validity.</li> <li>• explain the concept and use of standard error of measurement.</li> <li>• compute standard error of measurement.</li> </ul>	<p><b>Unit 2 Validity and Reliability of a Test (10)</b></p> <p>2.1 Overview of validity</p> <p>2.2 Major considerations in Validation</p> <p style="padding-left: 20px;">2.2.1 Content consideration</p> <p style="padding-left: 20px;">2.2.2 Construct validation</p> <p style="padding-left: 20px;">2.2.3 Test-criterion relationship</p> <p style="padding-left: 20px;">2.2.4 Consideration of consequences</p> <p>2.3 Interpreting validity coefficients</p> <p>2.4 Factors influencing validity</p> <p>2.5 Overview of reliability</p> <p>2.6 Methods of estimating reliability with computation</p> <p style="padding-left: 20px;">2.6.1 Test retest method</p> <p style="padding-left: 20px;">2.6.2 Equivalent forms method</p> <p style="padding-left: 20px;">2.6.3 Split half method</p> <p style="padding-left: 20px;">2.6.4 Kuder-Richardson method</p> <p style="padding-left: 20px;">2.6.5 Interrater consistency</p> <p>2.7 Interpreting reliability coefficients</p> <p>2.8 Factors influencing reliability measures</p> <p>2.9 Relationship between reliability and validity</p> <p>2.10 Standard error of measurement</p> <p style="padding-left: 20px;">2.10.1 Concept</p> <p style="padding-left: 20px;">2.10.2 Use of standard error of measurement</p> <p style="padding-left: 20px;">2.10.3 Computing Standard error of measurement</p>
<ul style="list-style-type: none"> <li>• explain the concept of interpretive exercise.</li> <li>• construct the various forms of interpretive exercises.</li> <li>• explain the advantages and limitations of interpretive exercise.</li> <li>• construct the various forms of essay questions.</li> <li>• explain the advantages and limitations of essay questions.</li> <li>• prepare scoring criteria for essay questions.</li> <li>• suggest ways of improving scoring essay questions.</li> <li>• construct the various types of performance assessment</li> <li>• explain the advantages and</li> </ul>	<p><b>Unit 3 : Measuring Achievement (10)</b></p> <p>3.1 Measuring complex achievement: Interpretive exercises</p> <p style="padding-left: 20px;">3.1.1 Concept of interpretive exercises</p> <p style="padding-left: 20px;">3.1.2 Forms and uses</p> <p style="padding-left: 20px;">3.1.3 Advantages and limitations</p> <p>3.2 Essay questions</p> <p style="padding-left: 20px;">3.2.1 Forms and uses of essay questions</p> <p style="padding-left: 20px;">3.2.2 Suggestions for writing essay questions</p> <p style="padding-left: 20px;">3.2.3 Advantages and limitations of essay questions</p> <p style="padding-left: 20px;">3.2.4 Essay scoring criteria</p> <p style="padding-left: 20px;">3.2.5 Suggestions for scoring essay questions</p> <p>3.3 Performance-based assessment</p> <p style="padding-left: 20px;">3.3.1 Concept</p> <p style="padding-left: 20px;">3.3.2 Types of performance assessment</p> <p style="padding-left: 20px;">3.3.3 Advantages and limitations of performance assessment</p> <p style="padding-left: 20px;">3.3.4 Suggestions for constructing performance tasks</p>

<p>limitations of performance assessment.</p> <ul style="list-style-type: none"> <li>• Describe the guidelines for developing portfolios.</li> <li>• Explain the strengths and weaknesses of portfolios.</li> <li>• Explain the functions and types of grading and reporting.</li> <li>• Suggest letter grading system for the course.</li> </ul>	<p>3.4 Portfolios</p> <p>3.4.1 Concept and purposes of portfolios</p> <p>3.4.2 Guidelines for developing portfolio</p> <p>3.4.3 Strength and weakness of portfolio assessment</p> <p>3.5 Grading and reporting</p> <p>3.5.1 Formal and informal evaluation</p> <p>3.5.2 Functions of grading and reporting systems</p> <p>3.5.3 Types of grading and reporting systems</p> <p>3.5.4 Multiple grading and reporting systems</p> <p>3.5.5 Assigning letter grades</p> <p>3.5.6 Conducting parent-teacher conference</p>
<ul style="list-style-type: none"> <li>• explain the concept and uses of standardized test.</li> <li>• explain the characteristics of standardized test.</li> <li>• plan for preparing the standardized test.</li> <li>• prepare the preliminary format of the test.</li> <li>• compute item analysis.</li> <li>• prepare final form of the test.</li> <li>• administer the final form of the test and determine reliability and validity of the test.</li> <li>• prepare test manual.</li> </ul>	<p><b>Unit 4 : Standardization of a Test (8)</b></p> <p>4.1 Concept and uses of standardized test</p> <p>4.2 Characteristics of standardized test</p> <p>4.3 Planning the Standardized test</p> <p>4.4 Preparing the preliminary format</p> <p>4.5 Tryout of the test</p> <p>4.6 Item Analysis</p> <p>4.6.1 Item difficulty index and discrimination index</p> <p>4.6.2 Distracter analysis</p> <p>4.6.3 Using item analysis for improving test items</p> <p>4.7 Preparing the final form of the test</p> <p>4.8 Administration of the final form of test</p> <p>4.8.1 Determining validity</p> <p>4.8.2 Determining reliability</p> <p>4.8.3 Norms – raw scores, age norms, grade norm, percentile norms and standard scores.</p> <p>4.9 Preparation of test manual</p>
<ul style="list-style-type: none"> <li>• define the term intelligence.</li> <li>• explain some facts about intelligence.</li> <li>• explain the concept and uses of intelligence tests.</li> <li>• differentiate between individual and group intelligence test.</li> <li>• explain briefly the early editions of SB intelligence scale.</li> <li>• explain the characteristics and psychometric properties of</li> </ul>	<p><b>Unit 5 : Intelligence and Standardized Achievement Test (12)</b></p> <p>5.1 Concept of intelligence</p> <p>5.2 Facts about intelligence</p> <p>5.2.1 Intelligence and age</p> <p>5.2.2 Intelligence quotient</p> <p>5.2.3 Intelligence and sex differences</p> <p>5.2.4 Heredity and intelligence</p> <p>5.3 Intelligence Tests</p> <p>5.3.1 Concept and uses of intelligence tests</p> <p>5.3.2 Types of intelligence test – individual and group test</p>

<p>modern SB scale 5th edition.</p> <ul style="list-style-type: none"> <li>• explain the general features of Wechsler tests.</li> <li>• explain the various subtests of Wechsler test.</li> <li>• explain briefly the WAIS III and WISC IV.</li> <li>• explain the concept and uses of standardized achievement test.</li> <li>• explain briefly the Stanford Achievement Test</li> </ul>	<p>5.3.3 Brief review of early editions Stanford-Binet (SB) tests</p> <p>5.3.4 Characteristics and psychometric properties of SB test 2003 fifth edition.</p> <p>5.3.5 General features and subtests of Wechsler Adult Intelligence Scale III and Wechsler Intelligence scale for Children IV</p> <p>5.4 Standardized Achievement test</p> <p>5.4.1 Concept and uses of standardized achievement test.</p> <p>5.4.2 Brief review of Stanford Achievement Test (SAT)</p>
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*Note: The figures in the parenthesis indicate the approximate teaching hours for the respective units.*

#### 4. Instructional Techniques

##### 4.1 General Techniques

- Lecture with discussion
- Demonstration
- Home assignment and self study

##### 4.2 Specific Instructional Techniques

Unit	Activity and Instructional Techniques
	One book review From the list of recommended books
IV	Preparation of specification chart, test items and practice on item analysis, determining reliability, validity and norms
V	Group term paper writing on intelligence tests and achievement tests and classroom presentation

#### 5. Evaluation

##### 5.1 Internal Evaluation 40%

Internal Evaluation will be conducted by course teacher based on following activities.

1) Attendance and participation	10 points
2) First assignment/book review/written assignment/quizzes	10 points
3) Second assignment/paper writing and presentation	10 points
4) Third assessment/ written test (1 or two)	10 points
Total	40 points

##### 5.2 External Evaluation (Final Examination) 60%

Examination Division , office of the Dean, Faculty of Education will conduct final examination at the end of semester.

1) Objective type question (Multiple choice 10x1)	10 points
2) Short answer questions (6 questions x 5 points)	30 points
3) Long answer questions (2 questions x 10 points)	20 points
<u>Total</u>	<u>60 points</u>

**6. Recommended Books**

- Gregory, R. J. (2005). *Psychological Testing : History, Principles, and Applications*. 4<sup>th</sup> ed. Delhi : Pearson Education Pte. Ltd. (For unit 5)
- Kubiszyn, T., & Borich, G. (2004). *Educational Testing and Measurement: Classroom Application and Practice* (7<sup>th</sup> ed.). India : John Wiley & Sons, Inc. (For units 1, 2 and 4)
- Linn, R. L. & Gronlund, N. E. (2003), *Measurement and Assessment in Teaching*. 8<sup>th</sup> ed., India : Pearson Education. (For units 1, 2, 3 and 4)
- Reynolds, C. R. et.al. (2009). *Measurement and Assessment in Education*. 2<sup>nd</sup> ed. New Delhi: PHI learning Pvt. Ltd. (For unit 1, 2, 3, and 4)
- Sharma, R. A. (2004). *Essentials of Measurement in Education and Psychology*. Meerut : R. Lall Book Depot. (For unit 1, 2 and 5)
- Sidhu, K. S. (2005). *New Approaches to Measurement and Evaluation*. New Delhi : Sterling Publishers Pvt. Ltd. (For unit 1 and 4)

**7. Reference Book**

- Ebel,, R. L. & Frisbie, D. A. (1991). *Essentials of Educational Measurement* (5<sup>th</sup> ed.). New Delhi : Prentice-Hall of India Pvt. Ltd.
- Patel, R. N. (2005), *Educational Evaluation theory and Practice*, 6th ed., Mumbai, India : Himalaya Publishing House Pvt., Ltd.
- Singh, A. K. (1997). *Tests, Measurements, and Research Methods in Behavioural Sciences*. 2<sup>nd</sup> ed. India : Bharati Bhawan Publishers and Distributors.
- Swain, S. K., Pradhan, C., & Khato, P. K. (2005). *Educational Measurement Statistics and Guidance*. 2<sup>nd</sup> ed. New Delhi, India : Kalyani Publishers.